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Tracheoesophageal Fistula Developing During Chemotherapy for Non-Hodgkins Lymphoma

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Lymphoma is an unusual cause of tracheoesophageal fistula (TEF). Most fistulas develop after radiation therapy and are a rare occurrence in patients treated with chemotherapy alone. The presence of a TEF is usually indicative of active lymphoma. This report describes a tracheoesophageal fistula that developed during chemotherapy for diffuse large cell lymphoma.

KEY WORDS: **esophagus, airway, complications, chemotherapy**

INTRODUCTION

The most frequent etiology of tracheoesophageal fistula (TEF) is carcinoma of the aerodigestive tract. Lymphoma is an uncommon cause of TEF, and the majority of these cases have been in patients with Hodgkins disease [1]. There have been only sporadic reports of TEF in non-Hodgkins lymphoma patients [1,2].

Tracheoesophageal fistula has been the presenting complaint in a number of cases, but the majority have developed after radiation therapy. The occurrence of this complication during treatment with chemotherapy alone is extremely uncommon. We report the case of a TEF evolving during chemotherapy for a diffuse large cell lymphoma.

CASE REPORT

A 32-year-old male was diagnosed with diffuse large cell lymphoma in September 1994, after presenting with a presumed goiter. The actual mass was located posterior to the thyroid and biopsy revealed diffuse large cell lymphoma. The patient was classified as Stage II-A disease. A six-cycle course of cyclophosphamide, mitoxantrone, vincristine, and prednisone was planned. During the first four cycles, the patient noted a cough, which increased when he drank liquids. This became progressively worse and in December a barium swallow and computed tomography (CT) scan identified the presence of a TEF. Oral alimentation was stopped, and the patient was referred to our institution.

We elected to complete the course of chemotherapy since the fistula appeared small. There had been no evidence of aspiration pneumonia, so oral intake was resumed. No further difficulty developed during the last two cycles of chemotherapy. A repeat CT scan obtained 4 weeks after completion of the chemotherapy demonstrated a TEF at the level of the thoracic inlet (Fig. 1). No residual disease was seen in the neck or thorax. Upper endoscopy showed a thickened, whitish area on the right anterolateral wall, ~18 cm from the incisors. Two separate fistulous tracts in the membranous trachea were visualized during bronchoscopy. Neck exploration revealed dense fibrous tissue between the trachea and esophagus, but no evidence of lymphoma. An elliptical opening, measuring 8 mm × 6 mm, in the anterolateral wall of the esophagus was seen after resecting a 1.5 cm segment of trachea. The edges were trimmed and the defect closed in one layer. After the trachea was anastomosed, a sternothyroid muscle flap was placed between the suture lines. Lymphoma was not detected in the resected specimens. A barium swallow on postoperative day 4 showed no extravasation. The patient did well and was discharged home on the fifth postoperative day, tolerating a regular diet. Eighteen months postoperatively, the patient is well and without evidence of recurrent disease.

DISCUSSION

Weber reported the first case of a TEF caused by lymphoma in 1930 [3]. Since then, <50 additional cases

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Fig. 1. Computerized tomography scan of the neck demonstrating a tracheoesophageal fistula at the level of the thoracic inlet.

have been described [1–4]. Hodgkins disease has been the lymphoma most frequently associated with TEF, whereas the non-Hodgkins lymphomas have infrequently been involved [2,5]. Radiation therapy was administered prior to the development of the fistula in most patients, but a smaller group had the fistula at their initial presentation to medical attention. Esophageal cancer patients may develop TEFs due to the rapid response of the tumor to chemotherapy, but primary esophageal lymphoma is rare. A fistulous tract developing in lymphoma patients treated with chemotherapy alone is extremely uncommon [4]. The presence of a fistula is usually indicative of active lymphoma, as was the case in 82% of the patients reviewed by Perry et al. [1].

The clinical history of patients with TEF due to esophageal, lung, or tracheal cancers is one of rapid deterioration, with almost 80% of the patients dying within 3 months. Death is due to aspiration pneumonia in >85% of these patients [6]. The prognosis in lymphoma patients with TEF is much better when the fistula closes, either by operative or nonoperative interventions, and remains closed. Recurrent lymphoma is usually the cause of death in this group rather than complications of the fistula. Survival in these patients approaches that of lymphoma patients who never develop a fistula [1].

An expectant approach may be used in selected patients, as many fistulas will close with treatment, reserving surgical intervention for those patients in poor medical condition or suffering recurrent episodes of aspiration pneumonia. Perry et al. [1] in their review of the literature showed that 8/28 patients had successful repair at the initial operative intervention. Their data suggested that the most favorable subgroup included patients developing a TEF during treatment and having no residual lymphoma at the time of repair [1]. Since we believed that the patient's best chance of cure was by completing a full, uninterrupted course of chemotherapy, we deferred repair until this was finished. The use of granulocyte colony-stimulating factor supported the white blood cell count, which may have prevented aspiration pneumonia despite continued oral intake.

CONCLUSIONS

Tracheoesophageal fistula developing in patients with lymphoma does not have the same poor prognosis associated with TEFs due to aerodigestive tract cancers. Man-

agement of the fistula can be individualized, avoiding multiple operations and permitting completion of curative therapy. The use of granulocyte colony-stimulating factor may have been of benefit in helping prevent aspiration pneumonia, which would have dictated earlier operative intervention.

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